We claim:

1. A method of fabricating a polysilicon film, comprising the steps of:

providing a substrate;

depositing an amorphous silicon film on the substrate by the process of physical vapor deposition;

introducing a metal catalyst to the amorphous silicon film; and

annealing the amorphous silicon film to form a crystallized region by pure metal induced crystallization.

2. The method of claim 1 further comprising the step of irradiating the crystallized region with an excimer laser after the step of annealing the amorphous silicon film.

3. The method of claim 1 further comprising the step of fabricating a thin film transistor in the crystallized region.

4. The method of claim 1 further comprising the step of utilizing the crystallized region in a liquid crystal display.

5. The method of claim 1 wherein the amorphous silicon film is deposited using Argon as a sputtering gas, and wherein the Argon content in the amorphous silicon film after the deposition step is in the range of $2x10^{18}$ at/cm^3 to $5x10^{21}$ at/cm^3.

6. The method of claim 1 wherein the amorphous silicon film is deposited using Argon as a sputtering gas, and wherein the Argon content in the crystallized region after the annealing step is in the range of $2x10^{18}$ at/cm^3 to $5x10^{20}$ at/cm^3.

7. The method of claim 1 wherein the annealing step is conducted at a temperature greater than 650 °C and for a time period greater than 200 seconds.

8. The method of claim 1 wherein the annealing step produces a crystallization growth front length of at least 80 μm.

9. A thin film transistor produced by the method of claim 1.

10. A liquid crystal display produced by the method of claim 1.

11. A polysilicon film on a substrate produced by the method of claim 1.

12. The method of claim 1 further comprising the step of providing a barrier layer on said amorphous silicon film wherein said barrier layer includes a window therein for the introduction of said catalyst to said amorphous silicon film.

13. A thin film transistor produced by the steps of:

providing a substrate;

depositing an amorphous silicon film on the substrate by the process of physical vapor deposition;

introducing a metal catalyst to the amorphous silicon film;

annealing the amorphous silicon film to form a crystallized region by pure metal induced crystallization; and

fabricating a thin film transistor within said crystallized region.

14. The thin film transistor of claim 13 wherein the crystallized region has uniform material characteristics therethrough.

15. The thin film transistor of claim 13 wherein the amorphous silicon film deposited on the substrate has an Argon content after deposition in the range of $2x10^{18}$ at/cm^3 to $5x10^{21}$ at/cm^3, and wherein the crystallized region has an Argon content after crystallization in the range of $2x10^{18}$ at/cm^3 to $5x10^{20}$ at/cm^3.

16. The thin film transistor of claim 13 further produced by the steps of irradiating the crystallized region with an excimer laser after the step of annealing the amorphous silicon film.

17. A liquid crystal display which incorporates the thin film transistor of claim 13.

18. The thin film transistor of claim 13 wherein the annealing step is conducted at a temperature greater than 650 °C and for a time period greater than 200 seconds.

19. The thin film transistor of claim 13 wherein the annealing step produces a crystallization growth front length of at least 80 μm.

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